

Appl. No. 10/625,125
Amdt. Dated March 25, 2005
Reply to Office Action of December 3, 2004

Attorney Docket No. 81815.0049
Customer No.: 26021

Amendments to the Specification:

Please insert the following paragraph at p. 1, line 2:

Cross-Reference to the Related Applications

This application is a continuation of application serial number 10/215,150, filed August 8, 2002, now U.S. published patent application number 20020184851, which is a continuation of application serial number 09/545,281 filed April 7, 2000, now U.S. patent number 6,460,312, which applications are hereby incorporated by reference in their entirety.

Please replace the text at p. 5, lines 18-20 with the following rewritten text:

FIG. 7 is a flow chart showing the operation of the system; and FIG. 8 is a schematic block diagram showing an example of a modification; FIG. 9 is a schematic side view of a portion of a packaging machine; and FIG. 10 is a flow chart showing the operation of the system using the bite detecting means for detecting the presence or absence of articles being bit into the sealed portion.

Please insert the following text at p. 16, between lines 7 and 8:

As shown in Figure 9, the opposite sealing jaws 23 and 26 attached to the leading edge of the arm 21 are rotated around the shaft. At the point where the opposite sealing jaws contact each other, a film W is sealed to make the upper end and the bottom end of bags. When the sealing jaws contact films to seal them, the jaws move along the films. That is, the sealing jaws' motion is D-shaped. A

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displacement of the arm supporting shaft in the horizontal direction is performed by the servo motor 22 with the turn buckle mechanism in order to make the D shaped motion.

The servo motor 22 has the rotary encoder. At first, only a film is supplied (no product is fed) and sealed for a blank test. The rotation angle of the encoder provides a standard value which shows only a film thickness. If a product is bitten between the seal jaws, the rotary encoder provides a value different from the standard value. Therefore, the presence or absence of products between the sealed portion can be found.

Products are supplied into a film tube having the bottom end, and the film is sealed by the opposite sealing jaws to make a bag. If the product supplying timing and the sealing jaw contacting timing do not match, a part of falling products is jammed between the sealing jaws. This jam is referred to as the term "bite" and the jammed products are referred to as "article being bit into the sealed portion".

The bite detecting means according to the present invention comprises (1) a detector 29 for detecting the variation in a distance between the sealing jaws such as the encoder and (2) a comparator 32 to make a comparison between the variation and the standard value obtained by the blank test 31.

If the detector detects a jam between the sealing jaws, the information is supplied to the determination means. If the judgment is made that the product flow is not good, depending on the jam frequency, an adjustment is made to change a product supplying interval.